

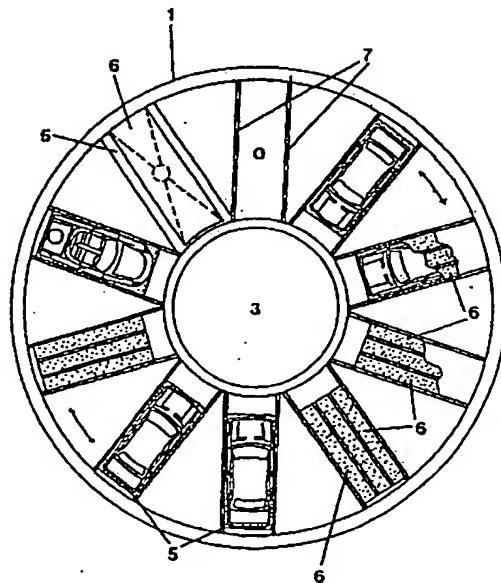


## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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(54) Title: AN AUTOMATIC GARAGE WITH ROTATING PLANES AND AN ELEVATOR



(57) Abstract

A modular container for the automatic recovery of vehicles, on rotating planes and vertical elevator, comprising horizontal parking planes, single or multiple and superimposed, each consisting of a plurality of support shelves (5) onto which the same number of boards (6) carrying the vehicle will be placed. Said planes are movable clockwise and anti-clockwise in rotary sense.

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An automatic garage with rotating planes and an elevator.

5 The present invention concerns a container for the automatic recovery of vehicles of the mechanic and modular kind, comprising one or more rotating planes and a vertical elevator.

10 Parking plants below the ground level are already known, for the transport and the housing of vehicles or superimposed planes, comprising automatic devices for the horizontal translation of the shelves carrying said vehicles when looking for parking areas. Said plants request considerable digging depth for the realization of a plurality of parking planes with consequent technical difficulties for the construction, 15 high costs and the impossibility of realization in limited digging areas.

20 It is therefore the aim of the present invention to realize a container for the recovery of vehicles that may keep a high number of said vehicles in areas of small depth.

25 The aim set forth is reached according to the present invention by means of a container comprising a plurality of horizontal parking planes, single or multiple, superimposed, each consisting in a plurality of support shelves onto which the same number of boards carrying the vehicles will be placed.

Said planes are rotatably moving clockwise and anticlockwise.

30 The vertical moving for the transport of the parking planes

- 2 -

will be provided, according to the present invention, by means of a mechanical, hydraulic or pneumatic hoister, said elevator shelf..

5. The sequences of parking and taking of the vehicle are operated by electronic or electromechanic devices.

The present invention will be described hereinbelow according to the attached drawings in which a preferred embodiment is shown.

10 Figure 1 shows a plant view of the container according to the present invention at the level of a parking plane.

15 Figure 2 shows a vertical section of the container along a plane passing through the free space 0 that allows the vertical movement of the elevation shelf.

20 Figures 3 and 4 show plant views of the container respectively at the ground level with access to the auto-parking and at the ground level of the container.

25 The figures show a modular container for the automatic recovery of vehicles, mainly comprising an outer cylindrica structure 1, built on basements 2, and provided with the central concentric cylindric area 3 for the services and the motorization, and with horizontal parking planes 4,

- 3 -

consisting in a plurality of support shelves 5 on a plurality of planes onto which the same number of boards 6 are provided carrying the vehicle.

5. Between said boards 6 a free space 0 is provided that allows the vertical moving of elevation shelf 7.

The working of the object of the present invention, with the storing or parking sequence of the vehicles, may be 10 described as follows:

- a board 6 supported by the elevation shelf 7 is at the level of the access plane A;
- in that moment one of the horizontal parking planes 4 15 is without board 6;
- the vehicle, driven by the owner, gets on board 6, appropriately provided for the exact placing of said vehicle;
- the horizontal parking plane is in the exact position 20 for receiving the ensemble board/vehicle;
- the elevation shelf starts the vertical movement for placing board 6 onto the horizontal parking plane 4;
- once the horizontal parking plane 4 has received the ensemble board/vehicle, a rotation starts that will allow 25 the elevation shelf a free board to bring back to the ground level;
- said operations will be performed until the first parking floor 4 is filled up, and then the following floors

- 4 -

are also filled up;

- should the whole container be filled up, the parking floors will be all placed with the respective free spaces 0 onto the same vertical axis and in coincidence, and the elevation shelf will be placed at the ground level.

5.

It is obvious that the operations for taking the vehicles will be performed vice versa with respect to the storing ones, but always operated by an automatic device of the known kind.

CLAIMS

1. A modular container for the automatic recovery of vehicles, on rotating planes and vertical elevator, characterized in:

5      - a cylindrical structure (1), resting on basements (2);

    - a central cylindrical area (3), concentrical to said structure (1), for the housing of the services and the motorization;

10     - a plurality of horizontal parking floors (4), consisting of support shelves (5);

    - a plurality of boards (6) carrying the vehicles, that may be placed in correspondence to said shelves (5);

    - a free space (0) provided between said boards (6), for the vertical movement of elevation shelf (7).

15

2. A container according to claim 1, characterized in the following functioning sequence:

20     - a board (6) supported by the elevation shelf (7) is placed at the same level than access plane (A);

    - in that moment, one of the horizontal parking floors (4) is left without board (6);

25     - the vehicle driven by the owner gets onto board (6), appropriately provided for the correct placing of said vehicle;

    - the horizontal parking floor is in the correct position for receiving the ensemble board/vehicle;

    - the elevation shelf begins a vertical movement for the placing of the board (6) onto the horizontal parking floor (4);

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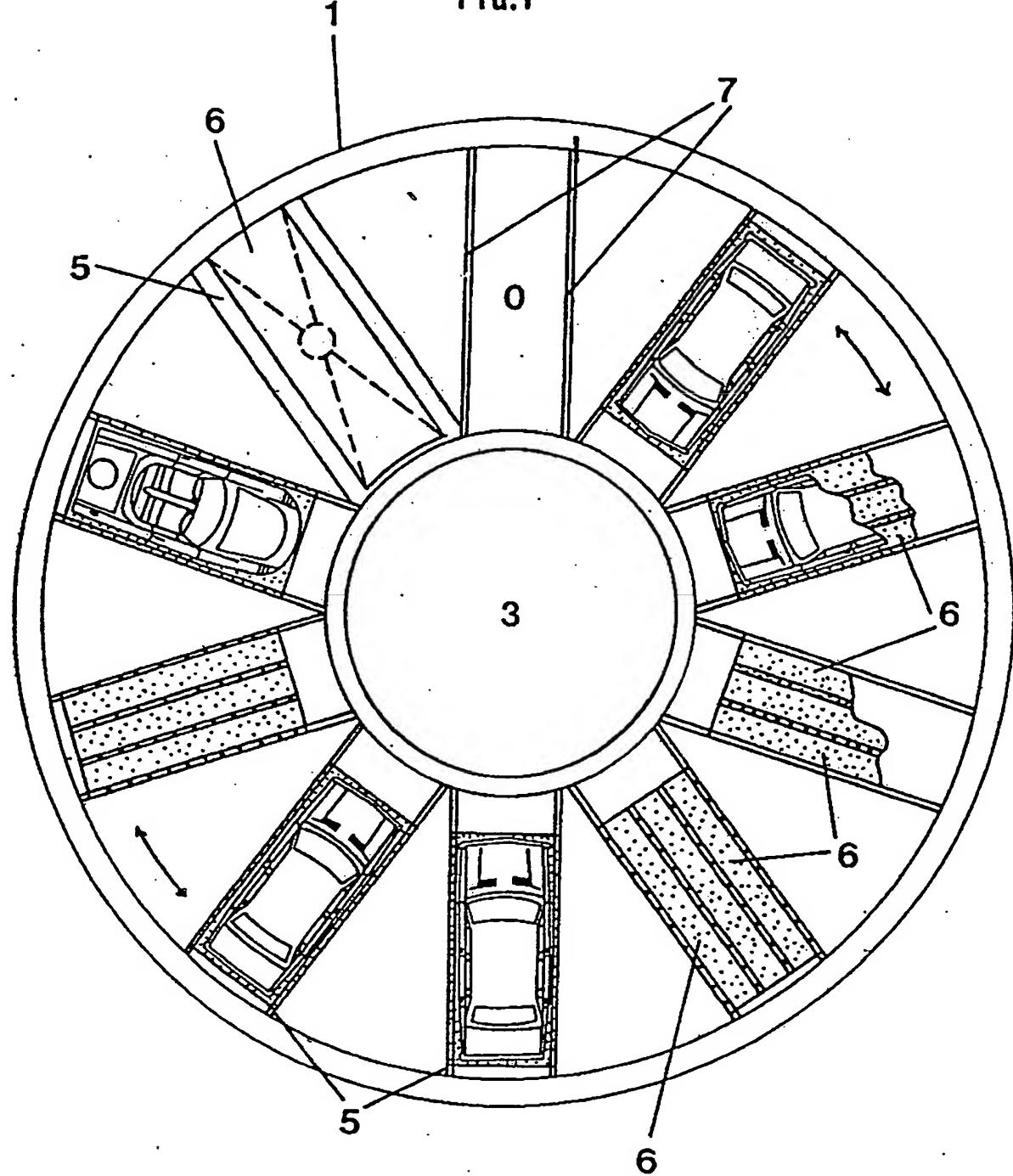
## 6.

- once the horizontal parking floor (4) has received the ensemble board/vehicle, a rotation starts that will allow the elevation shelf a free board to bring back to the ground level;
- 5 - said operations take place until the first parking floor (4) is filled up, and therefore for the following floors until the whole container is filled up;
- should the whole container be filled up, the parking floors will all be placed with the respective free spaces (0) onto the same vertical axis and in coincidence, and the elevation shelf will be placed at the ground level.

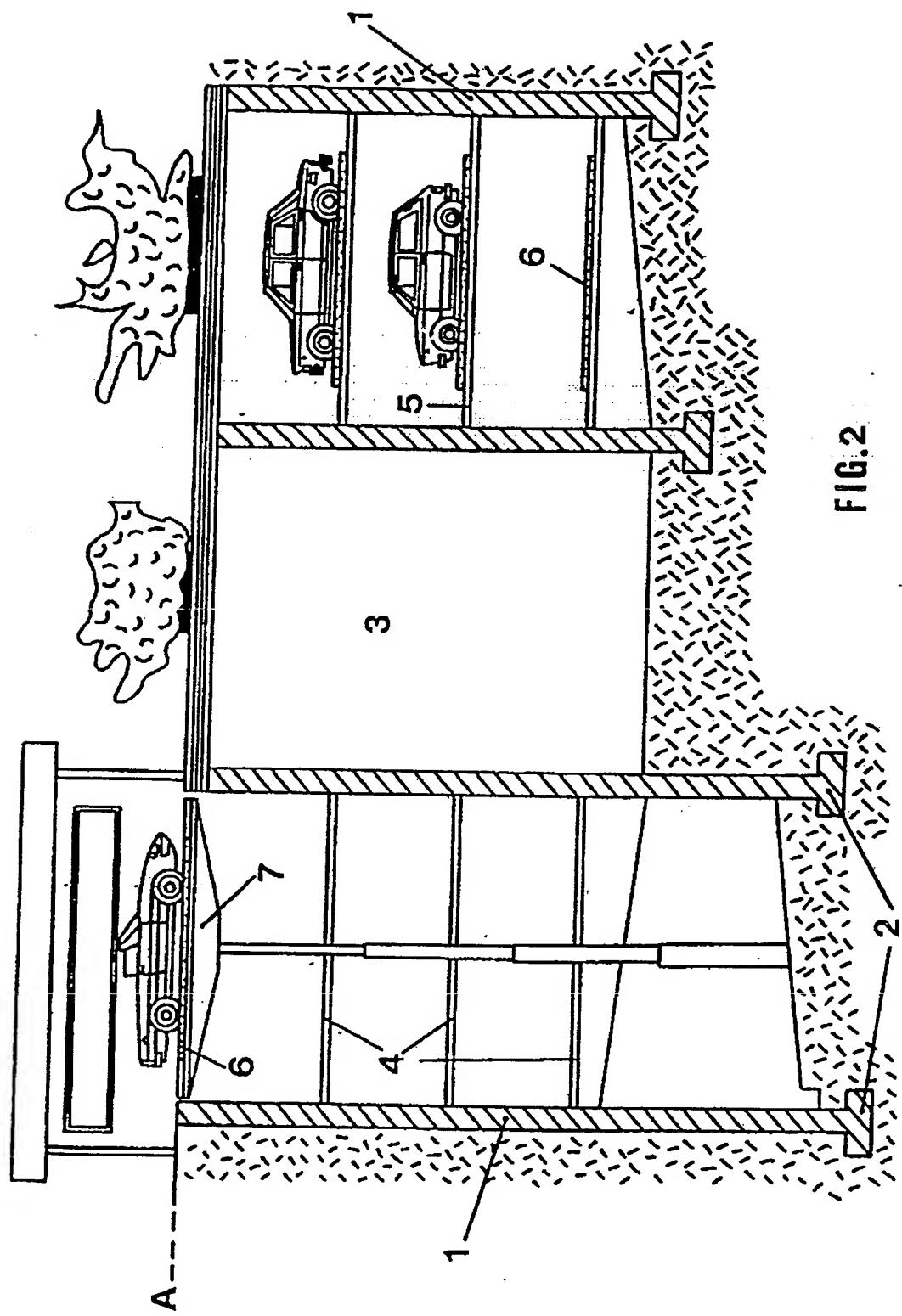
10 15 3. A container according to the preceding claims, characterized in that the operation of taking the vehicles will be performed vice versa with respect to the storing ones.

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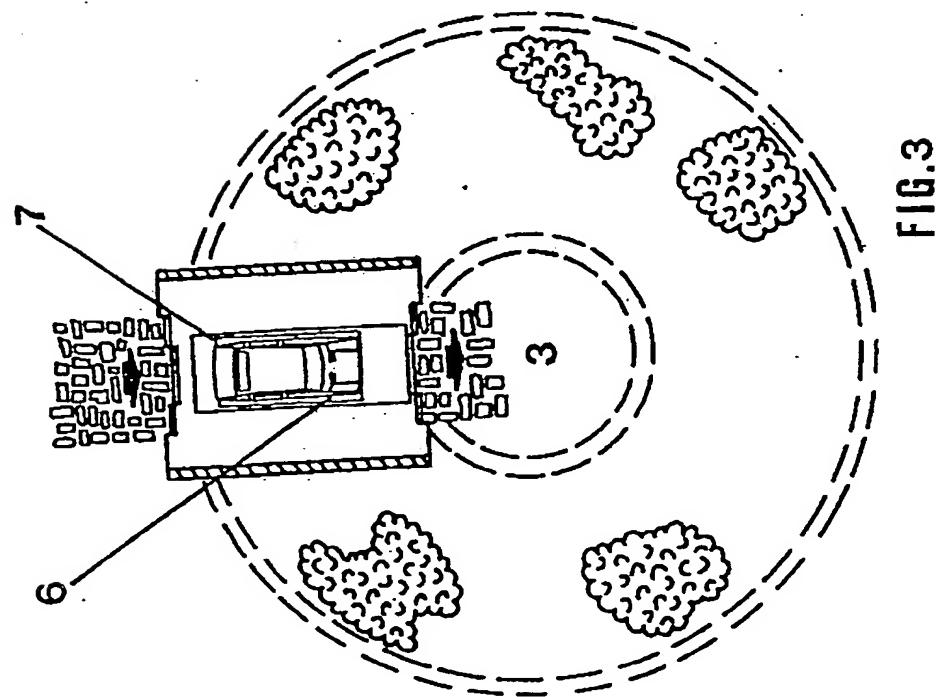
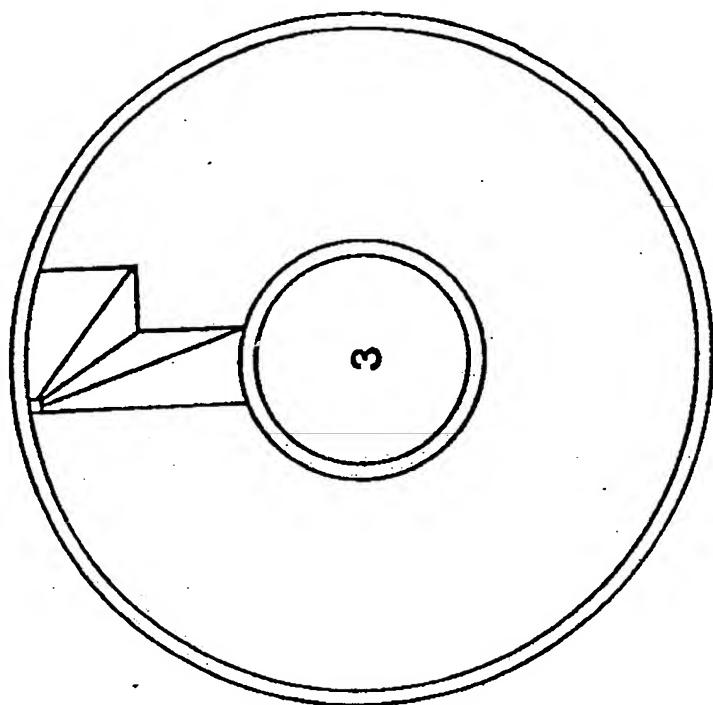
FIG.1



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# INTERNATIONAL SEARCH REPORT

International Application No

PCT/IT 87/00104

## I. CLASSIFICATION OF SUBJECT MATTER (If several classification symbols apply, indicate all) \*

According to International Patent Classification (IPC) or to both National Classification and IPC

IPC : **E 04 H 6/28**

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IPC <sup>4</sup>	E 04 H

Documentation Searched other than Minimum Documentation  
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## III. DOCUMENTS CONSIDERED TO BE RELEVANT\*

Category *	Citation of Document, <sup>11</sup> with indication, where appropriate, of the relevant passages <sup>12</sup>	Relevant to Claim No. <sup>13</sup>
X	FR, A, 1099082 (ROSTAIN) 30 August 1955 see page 1, column 1, line 8 - page 1, column 2, line 15; page 2, column 1, line 21 - page 4, column 1, line 16; figures 1,2	1-3

\* Special categories of cited documents: <sup>10</sup>  
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## IV. CERTIFICATION

Date of the Actual Completion of the International Search

1st March 1988

Date of Mailing of this International Search Report

08 APR 1988

International Searching Authority

EUROPEAN PATENT OFFICE

Signature of Authorized Officer

P.C.G. VAN DER PUTTEN

ANNEX TO THE INTERNATIONAL SEARCH REPORT  
ON INTERNATIONAL PATENT APPLICATION NO.

IT 8700104  
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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
FR-A- 1099082		None	

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